Amendments to the Claims

The listing of claims will replace all prior versions, and listings, of claims in the application:

<u>Listing of Claims:</u>

Claim 1 (currently amended): A method for the detection and analysis of patterns comprises the steps of:

    a) Input an image containing object labels;

    b) Perform relational feature development using the input image to create at least one pattern map output <u>wherein the pattern map consists of C x C object class relationships across an image set, each row of the pattern map is a distribution of object classes relations to C other classes including itself;</u>

    c) Perform relational feature analysis using the at least one pattern map to create a relational feature analysis result output.

Claim 2 (currently amended): The pattern detection and analysis method of claim 1 further <u>performing</u> ~~comprises a recipe for~~ automation control <u>of the relational feature development step and the relational feature analysis step using a recipe</u>.

Claim 3 (previously presented): The pattern detection and analysis method of claim 1 further includes determination of a genetic anomaly.

Claim 4 (currently amended): The pattern detection and analysis method of claim 1 wherein the relational feature analysis method selects from the set consisting of:

    a) ~~PatternMap~~ <u>Pattern map</u> viewing,

    b) ~~PatternMap~~ <u>Pattern map</u> operation

Claim 5 (currently amended): The pattern detection and analysis method of claim 1 wherein the relational feature development method further comprises the steps of:

    a) Perform core measurement table development using the input image to create at least one core measurement table output;

    b) Perform feature table production using the at least one core measurement table to create at least one feature table output;

    c) Perform ~~PatternMap~~ pattern map creation using the at least one feature table to create a ~~PatternMap~~ pattern map output.

Claim 6 (currently amended): The relational feature development method of claim 5 further comprises a ~~PatternMap~~ pattern map integration and update step to create an updated ~~PatternMap~~ pattern map.

Claim 7 (previously presented): The relational feature development method of claim 5 wherein the core measurement table selects from the set consisting of:

    a) Conditional table,

    b) Relational table.

Claim 8 (previously presented): The core measurement table of claim 7 wherein the conditional table includes measurements from the set consisting of:

    a) Boundary distance,

    b) Radial distance.

Claim 9 (previously presented): The core measurement table of claim 7 wherein the relational table includes measurements from the set consisting of:

    a) Object distance,

    b) Radial difference,

    c) Δ boundary difference,

    d) Pixel distance.

Claim 10 (previously presented): The conditional table measurement of claim 8 wherein the boundary distance measurement further comprises the steps of:

    a) Perform structure object mask production using the input image to create a structure object mask output;

    b) Perform inner distance transform using the structure object mask to create an inner distance transform image output;

    c) Find individual object centroids using the input image to create individual object centroids output;

    d) Find object boundary distance using the individual object centroid and the inner distance transform image to create an object boundary distance output.

Claim 11 (previously presented): The relational table measurement of claim 9 wherein the object distance measurement further comprises the steps of:

    a) Perform adaptive zone of influence using the input image to create a ZOI boundary output;

    b) Populate the object distance table using the ZOI boundary output to create an object distance table output.

Claim 12 (previously presented): The relational table measurement of claim 9 wherein the pixel distance measurement includes measurements from the set consisting of:

    a) Pixel distance average,

    b) Pixel distance edge.

Claim 13 (previously presented): The relational feature development method of claim 5 wherein the feature table production further consists of the following steps:

    a) Select one input relational table;

    b) Select a feature rule;

    c) Choose a data treatment;

    d) Select a class member integration rule.

Claim 14 (previously presented): The feature table production of claim 13 wherein the feature rule selects from the set consisting of:

a) Element based rules,

b) Row based rules.

Claim 15 (previously presented): The feature rule of claim14 wherein the element based rules selects from the set consisting of:

a) Conditional CM table rules,

b) Relational CM table rules.

Claim 16 (currently amended): The relational feature development method of claim 5̶6̲ wherein the P̶a̶t̶t̶e̶r̶n̶M̶a̶p̶ pattern map integration and update step selects from the set consisting of:

a) P̶a̶t̶t̶e̶r̶n̶M̶a̶p̶Pattern map integration rule,

b) P̶a̶t̶t̶e̶r̶n̶M̶a̶p̶Pattern map update rule.

Claim 17 (currently amended): The relational feature analysis method of claim 4 wherein the P̶a̶t̶t̶e̶r̶n̶M̶a̶p̶ pattern map Viewing selects from the set consisting of:

a) Color coded map,

b) Bar chart,

c) Histogram,

d) Image montage.

Claim 18 (currently amended): The pattern detection and analysis method of claim 2 wherein the recipe for automation control is selected from the set consisting of:

a) Image loading recipe,

b) Feature table production recipe,

c) P̶a̶t̶t̶e̶r̶n̶M̶a̶p̶ Pattern map creation recipe,

d) P̶a̶t̶t̶e̶r̶n̶M̶a̶p̶ Pattern map update and integration recipe,

e) P̶a̶t̶t̶e̶r̶n̶M̶a̶p̶ Pattern map operations recipe,

f) Output recipe.